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ABSTRACT

The guidelines presented are intended to stimulate institutional self-assessment, evaluation, and possible policy actions by college and university presidents, chief academic officers, and other academic officers not responsible for day-to-day administration of sponsored research programs. Officers of nonprofit research organizations may also find it useful. Institutional presidents and other officers need to be familiar with the array of variables that affect sponsored research programs. To that end, five major categories and fifteen subcategories of variables are established. The major categories are based on five principal administrative functions essential to any sponsored research program: (1) determining basic policy; (2) planning the program; (3) organizing the program; (4) coordinating the program with policy; and (5) representing the program externally. (Author/MSE)

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ASSESSING SPONSORED RESEARCH PROGRAMS

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an evaluative framework for use by college and university presidents and academic officers

THOMAS M. STAUFFER

American Council on Education

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American Council on Education
J. W. Peltason, President

THE AMERICAN COUNCIL ON EDUCATION, founded in 1918 and composed of institutions of higher education and national and regional educational associations, is the nation's major coordinating body for postsecondary education. Through voluntary and cooperative action, the Council provides comprehensive leadership for improving educational standards, policies, and procedures.

PREFACE

The National Science Foundation's (NSF) Research Management Improvement Program (RMIP) was inaugurated in 1972 to assist American colleges and universities and nonprofit research organizations in improving administration of their sponsored research programs. Enhancing the effectiveness of federal dollars expended for research was the RMIP's principal objective.

Thirty-five projects, selected from proposals submitted to NSF, were funded during fiscal years 1973 and 1974. Total funding came to $3,800,000. Because Congress did not provide funds for fiscal 1975, the program was phased out, although an advisory panel, convened by the American Council on Education's Office of Leadership Development, urged the National Science Foundation to establish a new program on research administration, to be called perhaps "Program for the Advancement of Research Administration and Planning." The panel made specific recommendations for instituting such a program.[1]

By early 1977, many completed RMIP projects and substantive interim reports, papers, and articles on the projects were available. This output provided the basis for *Assessing*, which was requested by the National Science Foundation's Directorate for Scientific, Technological, and International Affairs, and which provided wherewithal to assess RMIP output and to condense and disseminate selected results to the academic and research communities. Other assessment and dissemination projects have been undertaken by national professional organizations and by Professor Lowell H. Hattery of the American University.

Substantial credit is due Anat Yalik of the American University, who was the principal research assistant on this project, and Olive Mills of the American Council on Education, who edited the text with consummate deftness.

Thomas M. Stauffer
Washington, D.C.
October 1, 1977

[1]Thomas M. Stauffer, *Recommendations of Ways the National Science Foundation Can Assist Major Universities Improve Their Research Administration*, Washington, D.C.: American Council on Education, 1974, 28 pp.

USE AND DESIGN

Assessing Sponsored Research Programs is intended to stimulate institutional self-assessment, evaluation, and possible policy actions by college and university presidents, chief academic officers, and other academic officers not responsible for day-to-day administration of sponsored research programs. Officers of nonprofit research organizations should also find it useful. Institutional presidents and other officers need to be familiar with the array of variables which affect sponsored research programs and *Assessing* provides a framework for extending the degree of familiarity.

Five major categories and fifteen sub-categories divide the checklist of variables. The major categories are based upon five principal administrative functions essential to any sponsored research program, as follows:

- determining basic policy
- planning the program
- organizing the program
- coordinating the program with policy
- representing the program externally

Assessing should be especially useful to central administrators in formulating helpful questions for researchers and research administrators. The appendix lists all the RMIP projects and the liaison persons who should be contacted for additional information.

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ASSESSING SPONSORED RESEARCH PROGRAMS

I. DETERMINING BASIC INSTITUTIONAL POLICIES ON SPONSORED RESEARCH

A. *Basic Policy* — College and university presidents, chief academic officers, and other central administrators have responsibility for ensuring that their institutions have carefully articulated policies on sponsored research. These policy statements should address the following:

1. Relation of sponsored research to the general institutional mission.
2. Relation of sponsored research to the continuity of instructional, public service, and research policies of the institution.
3. Rationale for sponsored research being undertaken by the institution in the context of other priorities.
4. Rationale for involvement of faculty members in research activity.
5. Criteria which sponsored research projects must satisfy before they are undertaken at the institution.
6. Outline of existing policies, where such policies exist, on such matters as overhead, consultation practices of faculty members, patents, and copyrights.
7. Outline of basic issue areas where policies on sponsored research have yet to be determined and a timetable for resolution of the outstanding issues.
8. Outline of governance procedures for determining sponsored research policies, especially as they affect institutional autonomy.
9. Degree of centralization of policy determination on sponsored research and support services.
10. Relation of financial rationale for sponsored research programs to the academic mission of the institution.

I. DETERMINING BASIC INSTITUTIONAL POLICIES ON SPONSORED RESEARCH *(continued)*

B. *Policy on Interdisciplinary Research (IDR)* — Since sponsored interdisciplinary research is increasingly common and because IDR presents special problems to institutions organized around academic disciplines, basic policies for evaluating such research merit particular attention. A general IDR policy should address the following:

1. IDR consistency with institutional mission and objectives.
2. IDR contributions to instruction and academic processes.
3. IDR contributions to the enhancement of institutional reputation.
4. Opportunities for involvement by faculty members and students in IDR.
5. Extent of required financial commitment.
6. IDR consistency with institutional policies on patents, publication rights, secrecy, and the like.
7. Potential political impacts of IDR.

I. DETERMINING BASIC INSTITUTIONAL POLICIES ON SPONSORED RESEARCH *(continued)*

C. *Phases of Sponsored Research Administration* — Administrators and faculty members should work together to determine policy on each phase of administrative involvement in sponsored research. Principal phases are the following:

1. Attracting research-oriented faculty members and creating a favorable climate for research activity.
2. Enunciating legal requirements, social needs, and ethical considerations.
3. Selecting project directors.
4. Writing research proposals.
5. Preparing the proposal, including typing, editing, and clarifying technical details.
6. Approving proposals through appropriate institutional channels and defending research activity when challenged.
7. Interacting with sponsors through meetings, site visits, and public relations activity, including considering and approving proposals to be submitted in the future.
8. Negotiating contracts.
9. Protecting the rights and stressing the obligations of researchers.
10. Supporting research faculty members between projects.
11. Providing incentives, such as small planning grants and leave time, for new research directions.
12. Initiating projects.
13. Conducting sponsored research.
14. Managing the technical, fiscal, and related details of research projects, such as patent services.
15. Phasing out projects.
16. Evaluating projects.
17. Modifying policies in preparation for future research projects on the basis of experience summarized in the evaluation.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH

A. *Variables in the Planning Process* — Before a proposed research project is undertaken, its compatibility with previous institutional policies must be determined. The following is a checklist:

1. Institutional mission, functions, and general policies.
2. Policies governing sponsored research.
3. Relation of research to academic processes of the institution.
4. Advancement of institutional status, prestige, and research capabilities.
5. Professional advancement of faculty members.
6. Qualifications of researchers and peer relationships.
7. Promotion and tenure policies.
8. Student participation in sponsored research projects.
9. Level of departmental and college involvements in determining the balance between teaching and research and other governance questions.
10. Relation between research units and the institution.
11. Financial preconditions before undertaking a project.
12. Grant and contract administration.
13. Allocation of financial resources, including cost recovery and overhead.
14. Compensation of investigators and other payments.
15. Staff support in research administration.
16. Cooperation among departments.
17. Relationship among competing political considerations.
18. Compatibility between public and private sector considerations.
19. Ownership of research outcomes.
20. Conflict-of-interest rules.
21. Physical facilities, including renovation.
22. Animal care.
23. Communications.
24. Travel.
25. Computing services and data processing.
26. Accounting and financial reporting.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH *(continued)*

A. *Variables in the Planning Process* (continued)

27. Reporting of time requirements.
28. Electronic, machine, and other shops.
29. Installation and maintenance of equipment and utilities.
30. Installation and calibration of instruments.
31. Purchasing.
32. Excess and surplus equipment, including disposal.
33. Hazardous material and their handling.
34. Human subjects and their treatment.
35. Liability protection.
36. Library and information services.
37. Occupational safety.
38. Patents and copyrights.
39. Technical support personnel.
40. Institutional foundations to administer funds.
41. Proposal preparation.
42. Radiation safety.
43. Stockrooms.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH *(continued)*

B. *Problems in the Planning Process* — Each item listed under II. A. represents an opportunity for problems to develop. Experience has indicated that additional items merit special attention, in terms of potential for trouble, as follows:

1. Compliance with federal regulations and controls in such areas as equal employment opportunity and affirmative action, protocols on use of human subjects, patent regulations, requirement of approval by the Office of Management and Budget of all questionnaires used in research, special restrictions on certain purchases, such as printing services and office equipment, and special restrictions on payments, such as the National Science Foundation's two-month summer salary limitations.
2. Compliance with state and local regulations and controls.
3. Compliance with institutional regulations and controls, such as those contained in research policy and procedure manuals on recovery of indirect costs and measures of effectiveness.
4. Danger of misallocated resources: optimal utilization of manpower, money, and research space will depend on careful timing of their usage.
5. Danger of accelerating costs: in a project's early stage, support service costs usually exceed research income.
6. Danger of inadequate financial planning: financial management of support services is normally limited to maintenance of existing operations in anticipation of undertaking new research projects rather than to planning for optimal use of the new funds.
7. Danger of inadequate supervision: small-scale projects or discrete parts of larger projects, in such areas as cost control, productivity, and manpower utilization, tend to be neglected.
8. Danger of inadequate management information: accounting services tend to focus more on the needs of central administration for historical data and less on the information needs of those responsible for administering support services.
9. Need to describe adequately the kind, size, location, and other characteristics of the services required.
10. Need to design adequate operational procedures for each service.
11. Need to determine and enunciate factors which influence the acceptability of research services to all participants working on a research project.
12. Need to formulate a plan to assure financial stability for the management systems which control research support components.
13. Need to allocate management and decision-making responsibilities within the management systems used to control research support components.
14. Need to determine criteria for evaluation of research support services.
15. Need to develop a mechanism to enable research administrators to comprehend the full effect that a given research project will have on future support.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH *(continued)*

C. *Proposals* — Many problems resulting from an institution's commitment to sponsored research can be avoided if proposals are properly drawn and subsequent negotiations address major issues in research administration. A checklist of such issues follows:

1. Development of a clear statement of the research problem.
2. Selection of project director and assembly of the research team.
3. Development of research methodology and project organization.
4. Standardization of proposal format.
5. Interaction of research team with client, sponsor, and university.
6. Availability of support data, including budget data.
7. Determination of adequacy of the budget.
8. Coordination with federal agencies, including negotiation of multiple-year funding, of extension of basic or master agreements, and of funding of proposal preparation costs ("seed money").
9. Control and monitoring of each sponsored research project.
10. Assurance of adequacy of provisions for work descriptions, personnel staffing, support services, and project management.
11. Acceptability of the sponsoring agency's terms and conditions.
12. Management of conflict on the research team or between the team and research administrators by means of leadership and communication strategies.
13. Assurance of compliance with external requirements, most likely those of federal agencies, and internal or institutional regulations. Examples of external requirements include protection of human subjects, use of animals, use of narcotics and dangerous drugs, health and safety, environmental impact, equipment certification, and effort reporting requirements. Examples of internal regulations include equipment purchase and maintenance, construction or alteration of facilities, space requirements, additional staff, matching fund requirements, computer purchase or lease including use of on- and off-campus services, research assistants, indirect cost rates, salary and benefit levels, and eligibility of the principal investigator for each project proposed.
14. Review of proposal revisions and project alterations while research is being conducted.
15. Relationship between research plans and academic policies, for example, balance between research and teaching, involvement of graduate students, selection of subject matter for teaching and research, compatibility with overall institutional mission, compatibility with the institution's academic reputation, and balance between financial and academic priorities.
16. Completion of project and subsequent dissemination of results.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH *(continued)*

D. *Special Problems* — Experienced research administrators draw particular attention to planning problems in the following four areas:

1. Inter-institutional cooperation involves problems with communication between researchers, the funding of inter-institutional research, differing policies in matters as diverse as research objectives and promotion and tenure policies, organizational structure of the research project and its management, and motivation and morale of the research staff and of faculty members and administrators.

2. At smaller institutions, receipt of a research grant generates problems not found at larger institutions where research is more routine. For example, at smaller institutions, there is the need to strengthen support and managerial services for research; policies and regulations quite often do not mesh with new needs; management capacity is often inadequate to shape necessary organizational strategies and to develop objectives; and a well-defined management process must be created to replace more casual decision-making and planning procedures.

3. Duplication and underutilization of research equipment are problems avoidable through careful scheduling and servicing of equipment, through use of down time to balance instrumentation and increase its efficiency, and through advice to project directors on how equipment can best be utilized.

4. Personnel management in research is a constant problem. For example, initiation and expiration of grants may cause severe underutilization or turnover of personnel, with results which are costly to the institution. The flow of grants and the resulting expansion or loss of personnel may require continual training or retraining of staff. To overcome the problems caused by changing levels of grant support, institutions should: identify new funded research opportunities or expand ongoing research consonant with the need for some stability in employment of technicians, plan for project termination and anticipation of loss of technical jobs in relation to new or expanded projects, and support technicians between funding.

III. ORGANIZING TO ADMINISTER SPONSORED RESEARCH

A. *Research Administration Office Organization* — Basic functions of any research administrative office are reviewed here, as follows:

1. In order to encourage faculty members to submit sound proposals, an office of research administration should selectively disseminate research opportunity information and related data, train faculty members in proposal preparation, be the channel for communications with funding agencies, screen proposals in keeping with institutional policies and procedures, and encourage research in areas of emerging need.

2. In order to provide useful data, an office of research administration should establish a research information system to provide data on current research being performed in the institution, on matching faculty members' interests with funding opportunities, on the total research profile of the institution, and on organization of the process of analyzing the institution's research capabilities.

3. In order to develop stronger departmental and faculty services to foster project generation, an office of research administration should play an active role in general institutional policy deliberations, conduct face-to-face discussions with faculty members about research interests, promote research activity and required support services, offer technical aid in project administration to faculty members, concentrate on gathering information from and about federal agencies, brief faculty members on research funding trends, organize the office staff by research areas, and locate the office in the central administrative structure at a level appropriate to anticipated level of research activity relative to overall instructional budget.

III. ORGANIZING TO ADMINISTER SPONSORED RESEARCH *(continued)*

B. *Interdisciplinary Research (IDR) Administration: Major Issues* — Interdisciplinary research (see also section I. B.) differs from research restricted to one discipline in communication requirements, methodology, and administration. Experience suggests that the following merit careful consideration in any IDR project:

1. IDR tends to be more difficult to manage than disciplinary research.

2. IDR requires special organizational structure.

3. IDR tends to encourage consideration of organizational structures at institutions along something other than departmental lines, because institutional organization and reward structures are normally based upon departments. Also, because institutions are organized around departments, institutions often are not able to respond to IDR funding opportunities.

4. Communication problems on IDR projects, among institutions and sponsors and among institutions on inter-institutional programs, are frequently greater than on disciplinary research projects.

5. Also, IDR usually costs more than disciplinary research; IDR cost estimates often lack the clarity of disciplinary project estimates; evaluation of IDR outcomes is frequently more difficult; IDR physical facilities often have special design requirements; and faculty members usually lack the training or frame of reference needed for IDR.

6. Special behavioral issues are encountered with IDR, such as those relating to communications and to status structure within the team; to motivation for such research when institutional structure, government regulations, supervision, and reward of the research team may be at odds with such factors encountered in disciplinary research; to psychological, educational, and conflict differences caused by the various disciplines represented; to difficulties which may result from the lack of research team focus on one problem; to debates between advocates of pure and applied research; and to faddism which sometimes surrounds IDR.

III. ORGANIZING TO ADMINISTER SPONSORED RESEARCH *(continued)*

C. *Interdisciplinary Research Administration: Organizational Imperatives* — Normally, interdisciplinary research (IDR) is problem oriented and provides short-term results. Also, in comparison with disciplinary research, IDR is more team management and leadership oriented; needs more institutional backing, funding to overcome disincentives, and documentation and accountability; and requires more effort to demonstrate its utility to scholars steeped in one discipline. These normal imperatives for successful IDR commend the following organizational requirements:

1. An integrated reward system for departmental personnel engaged in IDR.

2. Special attention to the allocation and utilization of resources.

3. Clear statement of institutional mission and goals as they relate to IDR, especially the guidelines governing the suitability of undertaking a specific sponsored project.

4. Clear definition of expectations from IDR in relation to accountability to sponsor and to institution and to the applicability of results.

5. IDR information system for faculty use.

6. Centralized allocation system to ensure resource availability for interdisciplinary faculty members and staff who do not have home departments.

7. Physical proximity of IDR team members and a central IDR project office with nearby meeting rooms, as well as regular reporting, informality among IDR researchers, and avoidance of status problems, to improve team communication internally and externally.

8. Project control mechanisms, including adequate planning, proposal screening, evaluation procedures, and establishment of a project management position, to enhance control by central administration and single point management.

9. Budgetary control mechanisms, including a central discretionary fund to purchase faculty members from departments, alternative ways to calculate overhead, an accounting information system, single point management control, and clear budget policy statements.

10. Stated institutional goals to maintain IDR viability without affecting departmental objectives, to encourage faculty participation in IDR, to relate IDR projects to institutional mission, to consider IDR as a possible alternative to disciplinary research, and to facilitate IDR through a central service office.

11. Allocation of external and internal resources around a core staff and a subsidiary staff resource pool.

III. ORGANIZING TO ADMINISTER SPONSORED RESEARCH *(continued)*

C. *Interdisciplinary Research Administration: Organizational Imperatives* (continued)

12. Formulation of planning procedures and determination of resource requirements, of ratios of internal versus external support, of cost-benefit relationships, of project descriptions and implementation procedures to be followed, of detailed evaluation criteria, of management and accountability mechanisms, and of a means to disseminate project results, particularly if the outcome is of relatively high quality.

13. Evaluation of the research program (see also section IV. C.) generally, or a given project in terms of responsiveness to users' needs, of the understandability of results, of the relation to the institution's research program, of the nature of publications resulting from the research, of the extent of references to these publications by others, and of other dissemination of results, such as presentations to suitable groups.

IV. COORDINATING SPONSORED RESEARCH PROJECTS WITH ADMINISTRATIVE REQUIREMENTS

A. *Cost Recovery* — Rather than obtaining information at the termination of a given research project, research administrators should have up-to-date data throughout each project's life. These data should assist financial planning and lead to economies. Coordination of projects, data, planning, and cost control are especially important when considering the following areas:

1. Development of cost recovery policies in the context of overall sponsor-institutional relationships.

2. Standardization of sponsor-institutional arrangements, especially basic relationships between the federal government and the institution.

3. Development of policy based on flexible application of guidelines for indirect cost recovery, especially in regard to sponsoring agency expectations and full cost reimbursement.

4. Development of accountability, financial planning, and control policies by institutions.

5. Integration of direct and indirect cost sharing information into institutional administrative systems, especially to assure that the campus budget contains adequate funds to meet indirect cost obligations.

6. Attention to property management by standardization of all policies and practices, by control of property which could be diverted to personal use, by revision of equipment inventory records to include data on sources of funds used to acquire property, by use of project fund numbers, and by establishment of a property utilization program; in large institutions investigation of possible economies by using the institution's power plant rather than public utilities and by merging major laboratories with industrial concerns.

7. Attention to equipment maintenance by locating and listing existing maintenance facilities, by monitoring maintenance costs by use of data record sheets and by monitoring shop utilization rates, by standardizing research equipment brands to increase maintenance efficiency, and by improving data collection to increase record keeping efficiency which will in turn improve the basis for replacement and repair decisions.

IV. COORDINATING SPONSORED RESEARCH PROJECTS WITH ADMINISTRATIVE REQUIREMENTS *(continued)*

B. *Indirect Cost* — The following areas merit particular attention if an institution is to improve its indirect cost performance:

1. Adequate communications on policies, rate proposal preparation, on indirect cost and reimbursement decisions.

2. Improved rate proposal preparation by means of improved documentation and improved communication between research project managers and sponsors.

3. Careful assessment of reimbursement and indirect cost policies to provide guidance for improvements.

4. Careful assessment of buildings and structures used for research to permit depreciation charges rather than use charges.

5. Careful control of equipment to isolate fixed costs in order to permit charging for use rather than depreciation.

6. Improved administrative practices generally so as to improve cost control.

7. Improved monitoring of plant maintenance and operation costs to permit use of a weighting factor in allocating these costs to research.

8. Improved monitoring of effort, payroll, and other monthly reports to improve rate proposal documentation on indirect cost.

9. Improved communication with faculty members on indirect rate policies, rate proposal preparation, and reimbursement decisions.

10. Improved cash flow on direct and indirect costs by negotiating to bring additional sponsors into a cash advance program and by examining administrative systems to claim reimbursable expenditures on more than a current basis.

IV. COORDINATING SPONSORED RESEARCH PROJECTS WITH ADMINISTRATIVE REQUIREMENTS *(continued)*

C. *Project Evaluation* — Clearly stated in any institution's basic policy on sponsored research should be the requirement of detailed assessment of each completed project. Besides considering the time and sequence of evaluations and ways to measure their costs, implementing documents should list outcomes meriting evaluation, as follows:

1. Maintenance of academic freedom or freedom to pursue questions considered important by the researchers.
2. Fulfillment of contractual obligations to the sponsor.
3. Publications and papers generated.
4. Impact on institutional reputation.
5. Peer review.
6. Relationship between costs and benefits, if it is at all possible to consider such ratios.
7. Sponsor reaction.
8. Improvement of research capabilities.
9. Improvement of research administration capabilities.
10. Patents and copyrights generated, including compliance with institutional policies on disclosure of inventions and income realized, notification of sponsor, and evaluation of inventions and materials being considered for patenting or copyright.
11. Doctoral dissertations completed.
12. Comparison of research objectives with outcomes.
13. Research project design, performance, methodology, conclusions, and directions suggested for future research.
14. Dissemination of results, including readability, as well as transfer of technology.

V. REPRESENTING AN INSTITUTION TO SPONSORING AGENCIES

A. *Major Issues* — Sponsor-institution relationships, especially those involving the federal government, involve far-reaching issues, which may become critical enough to undermine the best efforts of institutions to mount productive sponsored research programs. Critical and potentially critical issues which must be addressed during deliberations on any institution's policy on sponsored research are listed as follows:

1. Effect that requests of sponsors for proposals may have on sponsored research programs and the institutional policies guiding those programs.
2. Effect of debate among sponsors on the competence of a given institution, especially under deadline pressure, to produce quality research programs.
3. Lack of specific criteria for selection of agencies or institutions to receive research funds.
4. Effect of sponsor's expectations for institutions to produce high quality research in a short time span.
5. Effect on the quality and progress of an institution's research program caused by attempts by funding agencies to specify research areas.
6. Effect of non-federal funding on an institution's sponsored research program.
7. Effect of poorly trained staffs of sponsors on an institution's sponsored research program.
8. Effect of the Freedom of Information Act on the ethical issues of invasion of privacy, of affirmative action plans, of requirements on human subject use, and of other federal regulations and laws.
9. Effect on traditional institutional organization and policies of sponsor-imposed regulations.
10. Effect on publication policies of institutions and researchers' publication rights imposed by sponsor's restrictions.
11. Effect of sponsor-imposed restrictions on use of graduate students on research projects.
12. Effect of differing cost accounting procedures among sponsoring agencies on an institution's research program.
13. Effect of cyclical changes in sponsor's policies on large versus small-scale research program grants, availability of pre-proposal "seed money," and other changes in direction, many of which may be quite sudden.
14. Effect of sponsor's request for data when the information bases may be too limited to comply fully.
15. Effect of federal requirements for time and effort reporting.

V. REPRESENTING AN INSTITUTION TO SPONSORING AGENCIES *(continued)*

B. *Variables in Sponsor-Institutional Relationships* — These relationships may be influenced by a host of variables, only some of which may be explicitly external in nature. Four categories of variables are identified, as follows:

1. Internal transactional matters such as proposal management, accounting practices, budget management, data banks, and space and resource allocations.

2. External transactional matters such as financial relations with federal agencies and with industry including full cost reimbursement, patent and copyright matters, faculty consulting, and summer salaries, accountability stipulations of different public and private sector agencies including variations among offices within agencies, and quality audits of federally and industrially sponsored research.

3. Basically non-transactional matters unique to each institution or class of institutions such as the political forces within an institution which influence the conduct of externally sponsored research; internal organizational matters including departments, institutes, and multidisciplinary arrangements; personnel matters including faculty relations; the motivation of research scientists, especially as motivation relates to the faculty system of rewards; institutional flexibility in research; the relationship of an institution's research goals and programs to its institutional objectives, especially graduate and professional education; and the planning of research programs with special reference to estimates of human and material resource requirements either as they relate to other research programs at an institution or as they involve cooperative arrangements with other institutions.

4. Matters involving broad questions of national science policy such as the place of research in the university and in other agencies, the impact of federally and industrially sponsored research on universities, the assessment of national research needs, quantitative and qualitative evaluation of efficient and effective resource use in research programs, the place of peer review in research administration, the intellectual resources available for new research directions, impediments to the translation of research findings into practice, the political and economic forces determining research funding levels especially as they affect broad classes of institutions, and the coordination of national science policy, standards and procedures.

APPENDIX

DIRECTORY OF RMIP PROJECTS

This assessment framework is based on reports, articles, and papers from the Research Management Improvement Program (RMIP). For information available in the projects themselves, users of this framework may contact the investigators listed below, who are either the principal investigators or the principal liaison persons for given projects.

The directory of projects is preceded by "Projects Classified by Area of Concentration," in which the arabic numbers refer to the projects as numbered in the directory. Several projects are listed in more than one classification; a few are not listed in the classification because their topics are extremely narrow.

It should be noted that, in the directory, the projects are titled according to their general theme inasmuch as project titles often do not convey their actual content.

PROJECTS CLASSIFIED BY AREA OF CONCENTRATION

I. DETERMINING BASIC INSTITUTIONAL POLICIES ON SPONSORED RESEARCH

- A. Basic Policy—7, 9, 14, 25.
- B. Policy on Interdisciplinary Research—4, 15, 22, 27, 28, 29, 30, 34, 35.
- C. Phases of Sponsored Research Administration—4, 7, 25, 35.

II. PLANNING TO ADMINISTER SPONSORED RESEARCH

- A. Variables in the Planning Process—22, 25.
- B. Problems in the Planning Process—3, 22.
- C. Proposals—3, 10, 22.
- D. Special Problems—3, 15, 19, 31.

III. ORGANIZING TO ADMINISTER SPONSORED RESEARCH

- A. Research Administration Office Organization—11, 18, 26.
- B. Interdisciplinary Research Administration: Major Issues—4, 15, 22, 27, 28, 29, 30, 34, 35.
- C. Interdisciplinary Research Administration: Organizational Imperatives—Same as III B.

IV. COORDINATING SPONSORED RESEARCH PROJECTS WITH ADMINISTRATIVE REQUIREMENTS

- A. Cost Recovery—3, 7, 12, 14, 20.
- B. Indirect Cost—1, 2, 3, 7, 8, 14.
- C. Project Evaluation—10, 22.

V. REPRESENTING AN INSTITUTION TO SPONSORING AGENCIES

- A. Major Issues—3, 4, 14, 16, 17, 21, 24.
- B. Variables in Sponsor-Institutional Relationships—Same as V A.

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS

1. IMPROVED RESEARCH SUPPORT SYSTEMS

   Mr. David W. Morrisroe
   Vice President for Financial Affairs
   California Institute of Technology
   1201 East California Boulevard
   Pasadena, California 91106
   213—795-6811, x2217

2. RESEARCH OPERATIONS AND RESEARCH POLICIES IN THE UNIVERSITY OF CALIFORNIA

   Dr. Fred E. Balderston
   Center for Research in Management Science
   26 Barrows Hall
   University of California
   Berkeley, California 94720
   415—642-4041

3. RESEARCH MANAGEMENT IMPACT ON INSTITUTIONS OF ADMINISTRATIVE REQUIREMENTS IN FEDERAL CONTRACTS AND GRANTS

   Mr. Gerald L. Griffin
   Director, Quality of Management Program
   423 University Hall
   University of California
   Berkeley, California 94720
   415—642-2334

4. RESEARCH MANAGEMENT IMPROVEMENT

   Mr. Jack M. Nilles
   Director, Interdisciplinary Program Development
   Administration 254
   University of Southern California
   University Park
   Los Angeles, California 90007
   213—746-6905, 7464

5. INTERINSTITUTIONAL PROGRAM TO IMPROVE RESEARCH MANAGEMENT

   Dr. Kenneth L. Beasley
   Assistant to the President
   Northern Illinois University
   Lowden Hall 301
   DeKalb, Illinois 60115
   815—753-1122, 1123

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS *(continued)*

6. FEASIBILITY OF APPLYING THE CRITICAL PATH METHOD OF PLANNING TO RESOURCE ALLOCATION FOR RESEARCH PROJECTS

Mr. David A. Sinclair
Vice President for Business Affairs
SUNY — Upstate Medical Center
766 Irving Avenue
Syracuse, New York 13210
315—473-4510

7. REVIEW AND ANALYSIS OF SPONSORED RESEARCH AT THE UNIVERSITY OF NORTH CAROLINA

Dr. E. Walton Jones
General Administration
University of North Carolina
P.O. Box 2688
Chapel Hill, North Carolina 27514
919—933-6981

8. INSTITUTIONAL STUDY GRANT FOR RESEARCH MANAGEMENT IMPROVEMENT

Mr. Hugh F. Jeffrey, Jr.
Director of Business Affairs
Office of Business Affairs
Oregon State University
P.O. Box 1086
Corvallis, Oregon 97331
503—754-3031

9. RESEARCH ORGANIZATION — A MODEL FOR MEDIUM-SIZE INSTITUTIONS

Dr. Bruce M. Smackey
Assistant to the Vice President for Research
College of Business and Economics, Lehigh University
Drown Hall, #35
Bethlehem, Pennsylvania 18015
215—691-7000, x2235, x842

10. STUDY AND DEVELOPMENT OF METHODS OF EVALUATING RESEARCH AT A UNIVERSITY

Dr. Henry W. Sams
Associate Dean, Graduate School
Pennsylvania State University
208 Kern Building
University Park, Pennsylvania 16802
814—865-2516

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS *(continued)*

11. IMPROVEMENT OF UNIVERSITY RESEARCH ADMINISTRATION FUNCTION

Dr. Burton V. Dean
Department of Operations Research
Case Western Reserve University
Cleveland, Ohio 44106
216—368-4140

12. RESEARCH EQUIPMENT ASSISTANCE PROGRAM

Mr. Roger Ditzel
Assistant to the Vice President for Research
213 Beardshear Hall
Iowa State University
Ames, Iowa 50011
515—294-4531

13. THE UNIVERSITY CONNECTED RESEARCH FOUNDATIONS — CHARACTERIZATION AND ANALYSIS

Mr. Ray D. Daniels
Director, Office of Research Administration
University of Oklahoma
1000 Asp Avenue
Room 314
Norman, Oklahoma 73069
405—325-4757

14. SPONSORED RESEARCH MANAGEMENT IN UNIVERSITIES

Mr. Raymond J. Woodrow
P.O. Box 36
Office of Research and Project Administration
Princeton University
Princeton, New Jersey 08540
609—452-3096

15. EFFECTIVE ORGANIZATION AND MANAGEMENT OF INTERDISCIPLINARY RESEARCH IN UNIVERSITIES

Dr. Frederick W. Crawford
Director, Center for Interdisciplinary Research
107 Polya Hall
Stanford University
Stanford, California 94305
415—497-1233

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS ***(continued)***

16. IMPROVEMENT OF RESEARCH MANAGEMENT RELATIONSHIPS BETWEEN STATE AGENCIES AND THE HIGHER EDUCATION COMMUNITY

Dr. Charles Seibert
Rebecca Crown Center
Room 2-221
Northwestern University
Evanston, Illinois 60201
312—492-3003

17. STUDY OF RESEARCH MANAGEMENT

Dr. George Russell
Vice Chancellor for Research
Graduate Center (338 Administration Building)
University of Illinois
Urbana, Illinois 61801
217—333-0034

18. ANALYSIS OF RESEARCH PROGRAM MANAGEMENT AND COMPUTER USE

Dr. Sidney G. Roth
Vice Chancellor for Federal Programs
New York University
5 Washington Square North
New York, New York 10003
212—598-2191

19. PROGRAM TO INCREASE PATENT AWARENESS AT 8 SELECTED ACADEMIC INSTITUTIONS

Dr. Willard Marcy
Research Corporation
405 Lexington Avenue
New York, New York 10017
212—986-6622

20. EFFICIENT MANAGEMENT OF COMPUTING RESOURCES

Mr. Robert R. France
Vice President
University of Rochester
Room 205, Administration Building
River Campus
Rochester, New York 14627
716—275-2800

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS *(continued)*

21. GOVERNMENT CONTRACTS AND GRANTS FOR RESEARCH — A GUIDE FOR COLLEGES AND UNIVERSITIES

Mr. Reagan M. Scurlock
Director, Research Administration
University of Pennsylvania
3451 Walnut Street
Philadelphia, Pennsylvania 19174
215—243-7293

22. MANAGEMENT AND THE ACHIEVEMENT OF RESEARCH GOALS

Dr. Charles C. Congdon
Assistant Director of Research
University of Tennessee Memorial Research Center
1924 Alcoa Highway
Knoxville, Tennessee 37920
615—971-3161

23. IMPROVEMENT OF THE ACQUISITION OF MODERN TECHNIQUES AND NEW DEVELOPMENTS IN RESEARCH ADMINISTRATION

Dr. Joseph M. Merrill
Office of the Executive Vice President
Room 191-A
Baylor College of Medicine
Houston, Texas 77025
713—790-4500

24. MANAGEMENT OF LABORATORY ANIMALS AND RELATED EQUIPMENT

Dr. Jerry Fineg
Director, Animal Resources Center
(Pharmacy 308)
University of Texas
Austin, Texas 78712
512—471-3131

25. IMPROVED MANAGEMENT OF SUPPORT SERVICES FOR UNIVERSITY RESEARCH

Dr. Robert Kuhlthau
Department of Science and Engineering Systems
University of Virginia
Thronton Hall
Charlottesville, Virginia 22903
804—924-3467

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS *(continued)*

26. SOFTWARE EXCHANGE DIRECTORY FOR UNIVERSITY RESEARCH MANAGEMENT

Mrs. Zella G. Ruthberg
Room A-265
Building 225
National Bureau of Standards
Washington, D.C. 20234
202—921-3861

27. MODES OF OPERATION OF POLYDISCIPLINARY RESEARCH TEAMS

Dr. Bernard P. Cohen
Department of Sociology
Stanford University
Stanford, California 94305
415—497-3958

28. MANAGEMENT OF LARGE SCALE INTERDISCIPLINARY PROJECTS

Dr. Norman A. Evans
Environmental Resources Center
Colorado State University
Fort Collins, Colorado 80523
303—491-5371

29. ORGANIZATION STRUCTURE AND PERSONNEL MANAGEMENT FOR EFFECTIVE INTERDISCIPLINARY RESEARCH PROJECTS

Dr. Douglas A. Benton
Director, Office of Special Programs
College of Business
Colorado State University
Fort Collins, Colorado 80523
303—491-7571

30. A STUDY OF RESEARCH MANAGEMENT IN 125 FEDERALLY FUNDED SOCIAL SCIENCE STUDIES

Dr. Donald G. McTavish
Department of Sociology
1114 Social Sciences Building
University of Minnesota
Minneapolis, Minnesota 55455
612—373-4654

RESEARCH MANAGEMENT IMPROVEMENT PROGRAM PROJECTS ***(continued)***

31. MANAGEMENT STUDY FOR A MERGED LARGE SCALE FLUID DYNAMICS LABORATORY — A JOINT UNIVERSITY-INDUSTRY VENTURE

Dr. John R. Ragazinni
Professor of Applied Science (retired)
New York University
Barney Building
26-36 Stuyvesant Street
New York, New York 10003
212—598-2191

32. THE IMPLEMENTATION OF IMPROVED MANAGEMENT OF LARGE SCALE INTERDISCIPLINARY RESEARCH PROJECTS

Dr. Kenneth W. Heathington
Director of Transportation Center
University of Tennessee
Knoxville, Tennessee 37720
615—974-5255

33. IMPACT OF MANAGEMENT-BY-OBJECTIVES PROGRAM AT OAK RIDGE NATIONAL LABORATORIES

Dr. H. Dudley Dewhirst
Associate Professor
Department of Industrial Management
408 Stockeley Management Center
The University of Tennessee
Knoxville, Tennessee 37916
615—974-3161

34. ANALYSIS OF ORGANIZATIONAL STRUCTURE AND MANAGEMENT SYSTEM IN INTERDISCIPLINARY RESEARCH

Dr. David Price
Dean of Research Programs
Johns Hopkins University
725 North Wolfe Street
Baltimore, Maryland 21205

35. ASSESSMENT AND EXPERIMENT WITH MANAGEMENT OF INTERDISCIPLINARY RESEARCH

Dr. Donald E. Bevan
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Seattle, Washington 98195
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